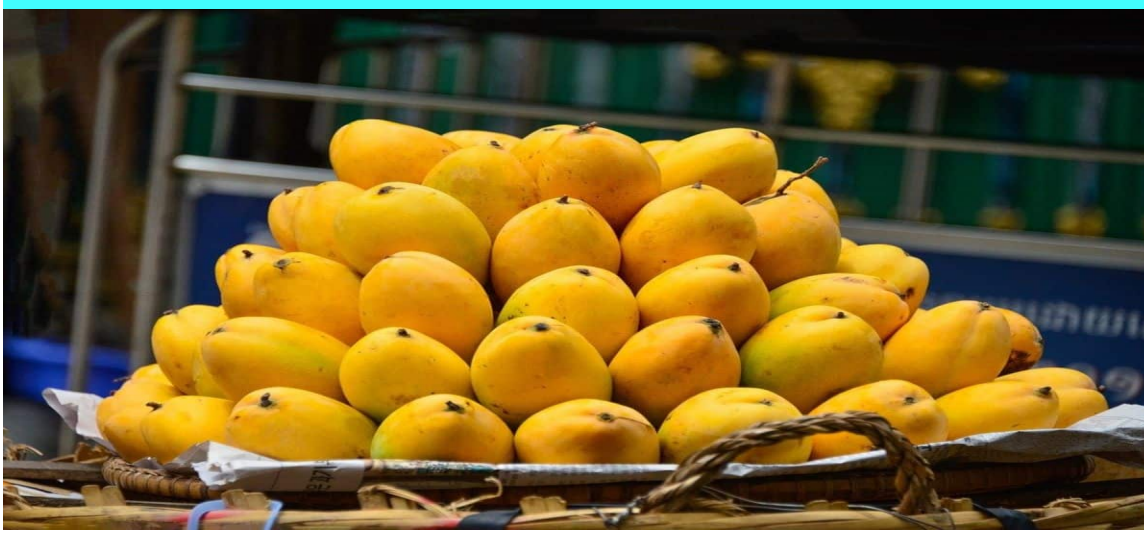


2022

# Cluster Profile

## Mango Cluster, Rahim Yar Khan



*Turn Potential Into Profit*



Small and Medium Enterprises Development Authority (SMEDA)  
Ministry of Industries and Production (MoI&P) Government of Pakistan

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## 1 Description of Cluster

### 1.1 History and Background of the Cluster

Mango commonly known as the ‘King of Fruits’, is an important national fruit and the second most significant fruit crop after citrus grown in Pakistan in terms of area under cultivation and production. Pakistani mangoes are globally known for their taste and nutritional value. During the summer season, domestic demand for mangoes is very high. They are popularly consumed both as fresh fruit and in processed forms such as jams, pickles, juices, nectars, squashes, milk-shakes and jellies. The strong production base, domestic demand (95%) and export potential of mangoes contribute to the country’s socio-economic development.

Pakistan with a production of 1717 thousand tones cultivated on 171 thousand hectors is the sixth-largest mango producer country of the world (FAO 2021). The mango production in Pakistan is predominantly based in Punjab and Sindh provinces contributing 99.7% of the total mango production in the country; 67% of it comes from Punjab and 33% from Sindh. The per hector yield of mango in Pakistan is around 10 tonnes per hector. The yield is highest in Punjab followed by Sindh while it is the lowest in Balochistan

The highest mango production comes from South Punjab mainly Multan and Rahim Yar Khan followed by Tando Allah Yar, Sindh province. However, the mango production is less in Balochistan and KPK provinces. Presently, Rahim Yar Khan mango cluster is comprising of around 2,300<sup>1</sup> mango growers and is providing direct daily wages opportunities to around 100,000 people.

### 1.2 Defining the Products

There are different varieties of mangoes produced in Pakistan. These have different harvesting time and characteristics in terms of shape, color, size and taste. The mango season spreads over five months, beginning in mid-May in Sindh and ending late September in Punjab, with late June to mid-August being the peak production period. The two most major varieties produced are Chaunsa (*Mangifera indica*) and Sindhri (*Mangifera indica*), which have local and international demand and export potential as well. Whereas, other varieties such as Langra, Anwar Ratul, Aman Dusehri, Fajri Kalan, Beganpali and Saroli are cultivated to a lesser extent. The important mango varieties cultivated in the South Punjab including Rahim Yar Khan and Multan cluster are as following:

- Langra Fajri Kalan
- Late White Bombay Chaunsa

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<sup>1</sup> Source: Rahim Yar Khan Chamber of Commerce & Industry (RYKCCI); Rahim Yar Khan Mango growers and Farmers Data

- Sindhri
- Bangan Pali
- Rataul (Anwar)
- Black Chaunsa
- Aman Dusehri
- Summer Bahisht
- Saroli Alphanso

### 1.3 Core Cluster Actors

The growers of the above mentioned mango varieties are the core cluster actors. According to South Punjab Agriculture sources, Rahim Yar Khan mango cluster comprises of around 2,300 growers. The majority of the mangoes orchards are of huge area sizes, with some medium and large ones also. The key growers' statistics are as follows:

**Table 1: Mangoes Cluster, Rahim Yar Khan**

|                      |  |
|----------------------|--|
| Number of Orchards   | There are around 2300-2500 orchards of medium and large size growing as unorganized sector in Rahim Yar Khan. These orchards are connected with different distributors and fruits retailers in different cities for their fruit selling. Most of their sale is domestic. |
| Number of Growers    | Approximately there are 2,300 growers. These farmers cultivate different varieties like Sindhri, Chaunsa, Langra, Sammer etc.  |
| Employment Generated | About 100,000 people are directly and indirectly employed on daily wages basis by the mangoes growers and exporters of Rahim Yar Khan.   |
| Capacity Utilization | 55% to 70%   |

Source: RYKCCI, Fruits and Agriculture Market Committees, Directorate of Fruits and Agriculture, RYK

### 1.4 Other Cluster Actors

The key cluster support actors who provide support services to core cluster in the area are including but not limited to agricultural input, plants, pesticides, fertilizers suppliers, machinery suppliers, packaging and transportation service providers etc.

**Table 2: Other Support Actors, Mango Producing Cluster, Rahim Yar Khan**

| Description                           | Details  |
|---------------------------------------|--|
| Agricultural inputs Suppliers         | <p>The major input required for growing of quality mangoes comprises of breeds of mango nursery plants, fertilizers and different agricultural inputs. The traders and suppliers of these raw materials are operating in the cluster. Majority of plants are bought from local quality mango producers, whereas high export quality plants are imported from China and USA.</p> <p>The traders within the cluster or from other major cities (i.e. Multan, Muzzafargarh, Khanewal and Hyderabad) supply local mango plants and crafted varieties to the growers.</p> |
| Agriculture Machinery Suppliers       | <p>Mostly the locally manufactured agriculture machinery is used for planting the mango plants and harvestings, packaging and transportations. However, Majority of imported agriculture machinery suppliers as well as manufacturers of local machinery are located in Multan, kabirwala and Rahim Yar Khan. Most of the mango orchards are using second hand machinery which is easily available with local machinery suppliers in the cluster.</p>  |
| Pre-harvest Contractors and Exporters | <p>The pre-harvest contractors are available in Multan, Rahim Yar Khan, and Lodhran. These contractors arrange to supply export quality fruit from orchards to exporters who transport the fruit to Karachi for export to Gulf Region, Europe and USA.</p>   |
| Traders, Wholesalers and Distributors | <p>A large number of Traders, Wholesalers and Distributors are operative in the cluster for the sale of quality mangoes in the city as well as across the country and also approaching the export markets.</p>   |

## 1.5 Geographical Location

The cluster is distributed around the District Rahim Yar Khan; however main concentrations are at:

- Main Karachi /Lahore/Peshawar, National Highway
- Shahbazpur Road
- Kacha Sadiqabad Road
- Liaqatpur to Sadiqabad/ RYK District Highway

Majority of organized sector is located at main KLP Highway, whereas, many orchards are also located in the other areas as stated above.

## 1.6 Current Cluster Scenario

The cluster requires major investment for transformation of agriculture practices from conventional manual process to semi-automation or complete automation in order to be competitive in the market. Some of the large orchards are using advanced agriculture machinery themselves for production, harvesting, and processing of different mango varieties. However, small farmers working with old farming techniques and machinery are unable to produce required export quality mangoes. Majority of farmers are growing and planting mangoes on rented agriculture lands, therefore, most of the farmers lack in fruit farming competencies and export market knowledge. A Mango Transformation Plan may be formulated which identifies sustainable cluster upgrading strategies with targeted interventions such as improved agronomic practices, harvesting, marketing and distribution for the development of the Mango sector. This can help create significant economic opportunities for producers, processors and all the stakeholders involved in the value chain.

Some large Orchards are capable of producing export quality mangoes whereas the unorganized small orchard farms produce low quality mangoes through excessive use of pesticides and fertilizers. During the last decade, the unorganized small orchard farms have grown much more rapidly comparing to the large orchards. There is an urgent need for the cluster to comply with the international agriculture environmental procedures, modern farms management, food safety and sanitary standards.

With the rise of juice demand including mango drinks in the local market it attracted many large scale branded industries to enter this market segment (Shezan, Mitchell, Engro Foods) which also led establishment of further fruit pulp industries such as Iftikhar & Co in Karachi and recently established Agro Food Processing Facilities in Multan by SMEDA as a Common Facility Center (CFC). In order to promote production at small and medium level, 13 dehydration units of small-scale have also been installed (8 in Punjab and 5 in Sindh) with the financial support from FIRMS/USAID Program.

## 2 Analysis of Business Operation

### 2.1 Production Operations

There are two stakeholders at the farm level, the owner/grower and the contractor. Usually the grower carries out major all the farm activities from raising seedlings, inputs to pruning. However, the grower does not get involved in the marketing activities due to lack of market information and risk. To minimize risk, the farm is leased out to the contractor mostly on annual basis. Due to annual arrangements, there is no incentive for the contractor to engage in better orchard management practices for sustainable orchard management and fruit quality. The contractor is selected on the basis of price and reputation. The contractors are responsible for harvesting, sorting, packing and transportation of mangoes. Most of the growers even the large



growers irrespective of having the infrastructure and financial capacity use traditional agronomic practices. Few large farmers implement modern farm practices and have acquired Global Gap certification.

The usual production process is given below:

**Seedling and Plantings** -- This involves seedling the fruit with a planter in lands in order to get the fruit productivity and maximum output.

**Pruning the Trees** --The fruit trees are cut and crafted with hands or some semi crafting machinery is used to ensure maximum fruit productivity.

**Strip Harvesting** -- This involves harvesting fruit with a wide variation of maturity in order to reduce harvesting costs

**Hand Picking** -- In attention to stem removal causes sap burn, which results in unattractive blemishes on the skin of the fruit. In addition, the sap attracts microorganisms (attached to soil particles) and insects,

**In Field Sorting** -- In-field sorting and packing the fruit is collected, placed on the ground and sorted. This practice exposes the fruit to soil-borne contamination; Sorting involves the removal of diseased and damaged fruit prior to packing in wooden boxes.

## 2.2 Raw Materials

Raw materials for the mango production comprise of some high quality seedlings, and plantations, pesticides and fertilizers, which are mostly purchased from local growers of South Punjab. Whereas, some of the special grade fertilizers and pesticides are imported from China to be used for productivity enhancements.

Following are the main raw materials or inputs used in production of mangoes;

**Table 3: Major Raw Materials**

| Description              | Details  |
|--------------------------|--|
| Seedlings                | Some high quality imported and local seeds procured for different mango varieties.   |
| Varieties of Plants      | Different plants are being crafted for different types of varieties of mango.  |
| Fertilizers and Minerals | The major ingredient used for enhancing the growth and productivity of mango trees. Some of the farmers use organic manure as fertilizers for their orchards. The DAP, UREA, Sulphar, gypsum are important ingredients for growth. |

|                    |  |
|--------------------|--|
| Irrigation         | Irrigation and watering the plants is very much important according to prescribed schedule. Some farmers are using drip irrigation technology to overcome wastage of water.  |
| Pesticides         | During mango season, some pesticides are being used for mango orchards in order to minimize the risks of the diseases, pathogens and pests attacks.  |
| Packaging Material | Use of wooden boxes for packaging the final product is a common practice at Rahim Yar Khan mango cluster. The wooden boxes are designed to contain 10kg of fruit however it is common practice for them to contain up to 13kg in order to reduce transport and handling costs. This practice causes physical damage and bruising of the fruit. |
| Transportation     | The open trucks are used for loading and transport the fresh mangoes to wholesale fruit markets of the country.  |

### 2.3 Technology Status and Quality Assurance

There is lack of use of modern agriculture machines and harvesting techniques for Rahim Yar Khan mango cluster. Currently, semi-automatic machinery is being used by the Mango Orchards farmers. The required machinery is mainly locally assembled and available from Multan and Khanewal.

It is a matter of satisfaction that modern technologies and processes have started getting into the mango value chain, like Global Gap Certification, hot water treatment, and pulp and juice making. However, the speed of the adoption of these technologies and processes is very slow. The large scale mangoes processing industry in Pakistan is using the latest plant and machinery with updated technology which helps them to produce the juices, squashes, Jams and pulps which are competitive in international food export market.

### 2.4 Marketing & Sales

Rahim Yar Khan mango cluster is primarily targeting the local domestic fruits market; around 95% of the mangoes produced in the cluster are sold in the domestic fruits market across Pakistan. A few of the growers are also exporting the mangoes to different countries in the world like (USA, EUROPE, Germany and South Asia). However, during the last three years, from 2019 to 2022, the Pakistani exporters have suffered due to the overall COVID-19 Pandemic situation globally.

Presently, the cluster primarily caters to the demand of local fruits market. However, there is lot of scope for exporting mangoes to various markets in the Middle East, Africa, Europe and even USA, to fetch billions of dollars as foreign exchange.



The sales and distribution network flow in local fruits market trade is as following:



Some of the Contractors and Arthis also have their own retail and distribution arrangements for distribution of mangoes. Additionally, export agents and local sales Aarthis/Agents are also working to facilitate exporters of mangoes to several countries.

## 2.5 Financing

Pre-Harvest contractor/Arthi is the main source of finance in the mangoes cluster of Rahim Yar Khan. Notwithstanding its positive contribution, middleman credit is believed to be the root cause of most of the problems faced by the mango cluster of Rahim Yar Khan. According to a rough estimate, most of the mangoes growers and farm contractors depend on middleman credit. In the face of the objections raised against the misuse of power exhibited by commission agents, the system in general is providing crucial sustenance to the farming community in a situation of inability of access to formal credit. During the auction, the producer or contractor can observe the bidding and know exactly the price offered for their produce.

However, financing to mangoes cluster is predominantly limited to larger orchards. Banks are hesitant to finance the small growers of the cluster due to small scale of business risk factor. Beside this as most of orchards are on lease and unorganized, therefore they are unable to maintain documentation required for lending prescribed by State Bank of Pakistan/Banks/Financial Institutions.

At present, no financial institution has developed / offered any customized lending scheme for the requirement of mango cluster at Rahim Yar Khan. The available financial products are not appropriate to cater the requirements of the cluster, especially due to current hike of interest rates.

## 2.6 Human Resource Management

The mango industry provides seasonal employment opportunities for the Rahim Yar Khan, rural labor force, with jobs ranging from orchard management and picking to packaging and other pre- and postharvest operations. Large farmers have the financial capacity to hire technically strong farm managers who make all farm management decisions and there is abundant availability of labor even women are involved in harvesting of mangoes. However, most of the farmers of Rahim Yar Khan do not have contractual farming.

The education level of labor working in this cluster is very low, which is a major hindrance in learning and accepting new agriculture tools and farming techniques. The mangoes industry is

forced to work on conventional lines. There are no vocational training facilities for the training of workers of this cluster. Most of the labor for harvesting is semi-skilled and trained on job.

There is no specialized labor available to facilitate the mango processing & pulp industry and hot treatment plants. The marketing, sales, and accounts are handled by the contractor himself on conventional lines.

## SWOT Analysis

### **Strengths**

- Availability of canal irrigation throughout the year
- Sandy soil texture, hot climate, and well drained land in Chaunsa cluster which are very much suitable for Chaunsa cultivation.
- Reliable major fertilizer and pesticide supply system with many National / Multinational Companies.
- Large mango orchards with experienced farmers.
- Good road infrastructure connecting Mango cluster with all big cities and the port
- Higher price of Chaunsa than other mangoes and acceptable taste of chaunsa in domestic and international markets
- Harvesting contracts or collectors pay the price to farmers based on the variety as well as the expected size of the fruit.
- Due to its unique flavor, sweet with fragrance it is much demanded international markets especially with the South Asian expatriates.
- White Chaunsa has higher shelf life than other mango varieties, hence travels long distance without damage.
- Established market links in traditional markets like middle east.
- The products prepared both from ripe and green Chaunsa are highly popular in Pakistan and abroad.
- Availability of internationally acceptable processing plants, technologies, and equipment for processing.
- Mango Research Institute in Shujabad and Strong network of extension spread at union council level.

### **Weaknesses**

- Lack of capacity to address the emerging issues in such as high-density gardens.
- Lack of capacity and resources for small scale stakeholders to get involved in Chaunsa processing
- Lack of direct flight services, shortage of air cargo space and inadequate cargo handling limit the export.



- Very limited time span when Chaunsa is available (from 7 July till 7 September) for processing
- Lacking mango quality infrastructure for quality maintenance
- Little trade links with high end market
- Prolonged winter and sudden rise in temperature affect flowering.
- Declining organic matter in soils
- Limited availability of certified, quality, and pure variety seed/seedlings
- Interaction among farmers and researchers
- No contract farming with defined quantities and quality parameter
- Lack of Credit availability from formal institutes for any actor of cluster
- Lack of certified nurseries and mother block, and traditional method of nursery plantation
- Use of rootstock which gives spreading and tall tree with low fruit-leave ratio
- Low plant population and flooding irrigation wastes water and deteriorate fruit quality
- Intercropping with mango garden
- Imbalance and injudicious use of fertilizers and pesticides.
- Wooden packing material used to prepare bags and improper staking for transportation.
- No environment (temperature, humidity, etc.) control during transportation.
- High fuel cost in transportation.

### **Opportunities**

- Already established soil testing labs in Punjab can play a major role in matching input with the soil nutrient conditions.
- Increasing poultry production and poultry manure is an opportunity to halt the declining organic matter.
- SOPs for atmosphere control transportation of mango has been developed and atmosphere control chambers are available in the domestic market
- SOPs are available to ship mango to long distances and atmosphere control chambers are available in the domestic market.
- Higher average world price of mango compared to the price Pakistani mango fetch has created big incentive for traders to improve mango quality for export.
- Many value added products can be produced from mango such as pulp for use in drinks and ice cream, canned mangoes and dried mangoes.
- Government incentives for import of agriculture machinery, especially cold store machinery.
- Rising international demand for mango and opening up new markets like Far East, China, Canada, Central Asia and Europe.

- "Model Farm" project of Punjab Government offers funds to establish farm-level quality infrastructure like cold storage facilities and other infrastructure like Hot Water Treatment plants
- New Market Act in Punjab has created big opportunity to reform the old market practices in the province.
- Emerging supermarkets can introduce contract with farmers which may improve retailing quality, reduce post-harvest losses and trading margin.
- Financial support by the commission agents and wholesalers to harvesting contractors can be converted into quality based delivery contracts.

### **Threats**

- Increase flooding with more intense in addition to frequent thunderstorms and rainfalls has negative effects on productivity.
- Drought during winter
- Use of adulterated or expired pesticides and injudicious use of chemicals.
- Infestation and fruit fly threat to mangoes.
- Exporting of poor quality uncertified Chaunsa has threatened its whole export.
- High pesticide and low quality produce may cause heavy rejection in export and threaten the whole export market of Chaunsa.
- Difficulty of training illiterate farmers about high tech methods and techniques.
- Supermarkets may exclude small farmers from the quality market.
- Big processing firms from China through CPEC with big incentives from the Govt. of Pakistan may grab the whole fruit processing market.
- Over-emphasis of the research and extension on major crops, and on the production of mango while ignoring the value chain issues.

## **3 Institutional Setup**

### **3.1 Entrepreneurs' Associations**

#### **Pakistan Mangoes Growers Association (PMGA)**

Address: 214-215, Second Floor, Metro Plaza, Qasim Road, Multan-PAKISTAN

Tel: (+92 61) 4581436, 92-0302-8632863

Email: [info@pmgmultan.org](mailto:info@pmgmultan.org), [ismailzai1@gmail.com](mailto:ismailzai1@gmail.com)

Web: [www.pmgmultan.org](http://www.pmgmultan.org)

#### **Rahim Yar Khan Chamber of Commerce and Industry (RYKCCI)**

Address: Bypass, Chowk bahadurpur Road, Rahim Yar Khan-PAKISTAN



Tel: (+92 68) 9230009,  
 Email: [info@rykcci.com](mailto:info@rykcci.com)

### 3.2 Support Institutions

#### Small & Medium Enterprises Development Authority (SMEDA)

Address: 4<sup>th</sup> Floor, Building No 3, Aiwan e Iqbal Complex, Egerton Road, Lahore  
 Tel: (+92 42) 111 111 456  
 Web: [www.smeda.org.pk](http://www.smeda.org.pk)  
 Email: [helpdesk@smeda.org.pk](mailto:helpdesk@smeda.org.pk)

#### Deputy Director (Fruits & Horticulture Extension) Rahim Yar Khan

Address: Office Agriculture, Near DPO office, Rahim Yar Khan.  
 Tel: (+92 68) 9230129  
 Email: [doagrirykhan@yahoo.com](mailto:doagrirykhan@yahoo.com)

#### Fruits Market Committee Rahim Yar Khan

Address: Secretary Office, New Grain Market, By pass road. Rahim Yar Khan  
 Tel: (+92 68) 5953313  
 Web: [www.amis.pk](http://www.amis.pk)

#### Mango Research Institute Multan (MRI)

Address: Near old Shuja Abad Road, RangilPur. Multan. Punjab.  
 Tel: (+92 61) 4423535  
 Web: [www.aari.punjab.gov.pk](http://www.aari.punjab.gov.pk)

#### Agro Food Processing (AFP) Facilities Multan

Address: Plot No. 30-33, Industrial Estate, Phase II, Multan  
 Tel: (+92 61) 9239450  
 Web: [www.afpf.org.pk](http://www.afpf.org.pk)

#### Pakistan Horticulture Development and Export Company (PHDEC)

Address: 3rd Floor, FPCCI Capital House, Aiwan-e-Sanat-o-Tijarat Road, Mauve Area, G-8/1, Islamabad. Pakistan.  
 Tel: (+92 51) 9107381-86  
 Web: [www.phdec.gov.pk](http://www.phdec.gov.pk)  
 Email: [info@phdec.org.pk](mailto:info@phdec.org.pk)



### 3.2 Banks and Financial Institutions

Almost all the registered financial institutions of Pakistan have their branches in the cluster.

## 4 Major Issues and Problems

- Poor stakeholders' capacities and lack of value chain infrastructure resulting in poor quality fruit production.
- Poor processing infrastructure at the farm-level has not only resulted in price gluts during the peak mango season but also lowered the competitiveness of the whole value chain.
- There is no scientific maturing index developed for the farmers to understand the right timing of harvesting. Most farmers are unaware of modern mango production and post-harvest management practices being used in many mango producing countries of the world. Moreover, protocols for the establishment of high-density gardens are largely missing.
- Growers have limited access to formal credit in this cluster, Hence more than 90% of all growers and farm contractors depend on middleman. Notwithstanding its positive contribution, middleman credit is believed to be the root cause of most of the issues faced by the agricultural sector especially production issues and limiting placed on the farmer's ability to sell his produce to the best paying buyer.
- Mango prices in different markets of Rahim Yar Khan are disseminated to farmers on daily basis; however, this information is limited to major mango varieties without mention of the quality within that variety. Moreover, no information is available about the international markets, especially its changing quality requirements. The information about emerging technologies in production, packaging, transport, and value additions are not provided to various stakeholders in the value chain, thus keeping them disconnected with the international market.
- Although fertilizer and pesticide supplies are mostly available, but prices of these inputs vary from year to year. Sometimes their non-availability constrains farmers' ability to ensure timely and adequate applications of these inputs. Also non-availability of quality fertilizer and micronutrients is causing plant health problems.
- There is little effective inter-department and intra-stakeholder coordination such as research, irrigation, farmers, traders, exporters and processors.
- Farmers experience difficulty in getting access to high quality planting material. There is also lack of reliable young pedigreed fruit trees from the uncertified nurseries leads to reduced unit yields, and poor production efficiency in orchards and low quality of fruit produced.

## 5 Investment Opportunities

The growing mangoes market both at domestic and international levels offers many lucrative investment opportunities to the investors. The need for following projects as potential investment opportunities in Mangoes Cluster Rahim Yar Khan has been identified on the basis of the key strengths of this cluster;

- Mangoes fruit Pulp industries
- Mangoes Dehydration plants
- Hot water treatment & grading plants
- Mangoes Juice & squash Production
- Mangoes processing plants
- Frozen Mangoes slices plant
- Fruit Cold storages
- Mangoes Jam, jellies, Products
- Mangoes pickles Productions
- Fruit candies/toffees and confectionary items unit
- Mango flavored ice cream production
- Mango flavored yogurt/milk production

Moreover, the following Pre-feasibilities are available on SMEDA website and can be consulted for further information:

- Juices, Pickles, Squashes (Manufacturing Units)
- Cold Storage
- Mangoes Processing Plants
- Fruits Candies (Manufacturing Unit)

The said documents can be downloaded from [www.smeda.org.pk](http://www.smeda.org.pk).

In case of any other relevant inquiry kindly visit SMEDA Regional Office - Punjab.